Temperature:	25℃	Test Date:	February 7, 2024
Humidity:	60 %	Test By:	KK
Test mode:	GFSK	Frequency:	Channel 39: 2441MHz

Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	Pass/Fail
11512.5	59.71	74	14.29	PK	Vertical	Pass
14716.875	62.5	74	11.5	PK	Vertical	Pass
17595	67.22	74	6.78	PK	Vertical	Pass
11512.5	41.93	54	12.07	AV	Vertical	Pass
14716.875	42.44	54	11.56	AV	Vertical	Pass
17595	46.01	54	7.99	AV	Vertical	Pass
11512.5	59.68	74	14.32	PK	Horizontal	Pass
14683.125	63.89	74	10.11	PK	Horizontal	Pass
17602.5	66.57	74	7.43	PK	Horizontal	Pass
11512.5	42.02	54	11.98	AV	Horizontal	Pass
14683.125	43.45	54	10.55	AV	Horizontal	Pass
17602.5	46.21	54	7.79	AV	Horizontal	Pass

Note:
(1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) Margin = Limit - Emission Level
(5)The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Temperature:	25℃	Test Date:	February 7, 2024
Humidity:	60 %	Test By:	KK
Test mode:	GFSK	Frequency:	Channel 78: 2480MHz

Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	Pass/Fail
11527.5	60	74	14	PK	Vertical	Pass
14553.75	62.78	74	11.22	PK	Vertical	Pass
17634.375	67.26	74	6.74	PK	Vertical	Pass
11527.5	41.94	54	12.06	AV	Vertical	Pass
14553.75	43.77	54	10.23	AV	Vertical	Pass
17634.375	46.96	54	7.04	AV	Vertical	Pass
11420.625	59.39	74	14.61	PK	Horizontal	Pass
14746.875	62.73	74	11.27	PK	Horizontal	Pass
17604.375	67.73	74	6.27	PK	Horizontal	Pass
11420.625	41.24	54	12.76	AV	Horizontal	Pass
14746.875	43.03	54	10.97	AV	Horizontal	Pass
17604.375	46.03	54	7.97	AV	Horizontal	Pass

Note:
(1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) Margin = Limit - Emission Level
(5)The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

Bluetooth (GFSK, pi/4-DQPSK, 8DPSK) mode have been tested, and the worst result(AC 120V/60Hz) was report as below:

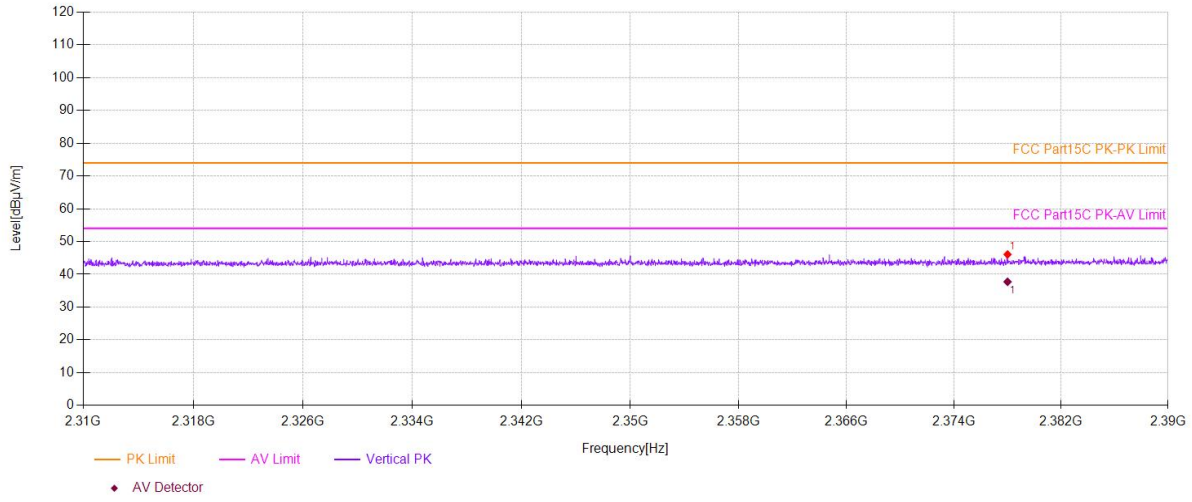
Test mode:	GFSK	Frequency:	Channel 0: 2402MHz		
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2381.81	H	46.66	74.00	36.79	54.00
2377.99	V	46.07	74.00	37.72	54.00

Test mode:	GFSK	Frequency:	Channel 39: 2480MHz		
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2485.43	H	47.21	74.00	37.03	54.00
2483.78	V	46.50	74.00	37.52	54.00

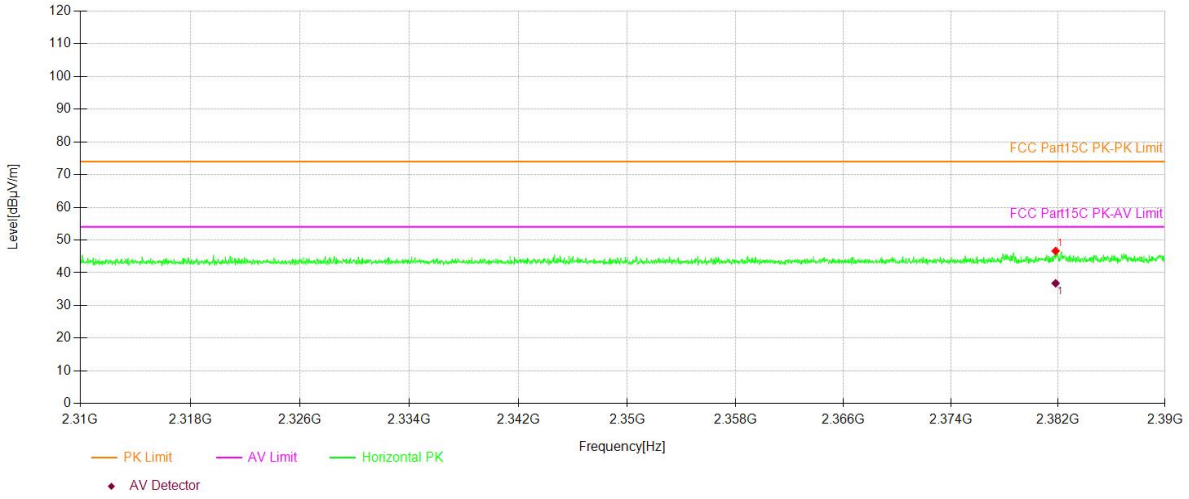
Test mode:	GFSK	Frequency:	Hopping		
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2400.00	H	60.95	74.00	42.97	54.00
2483.50	H	44.65	74.00	36.15	54.00
2400.00	V	59.36	74.00	42.05	54.00
2483.50	V	45.05	74.00	37.26	54.00

Note:
(1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

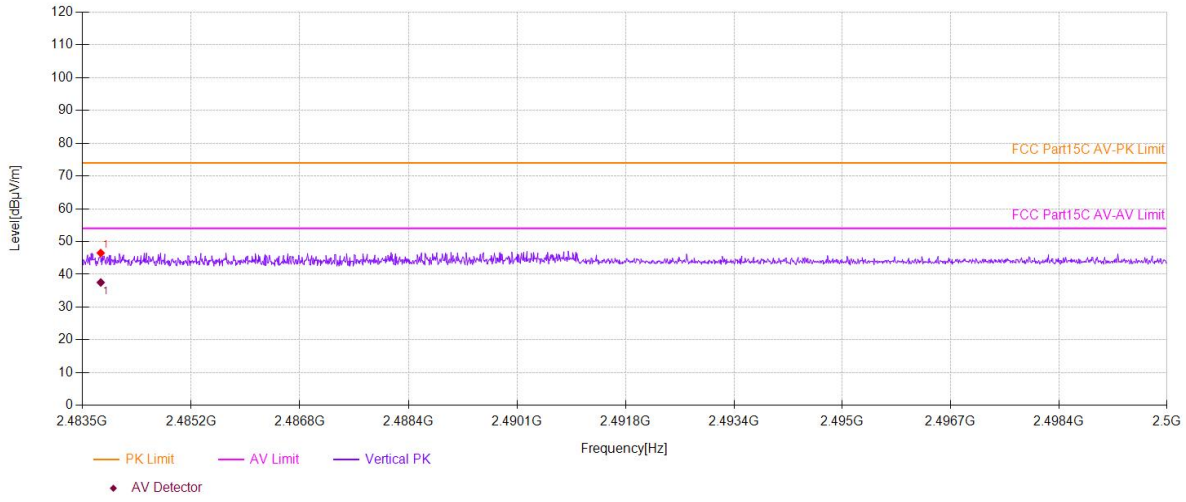
Test Model	Spurious Emission in Restricted Band 2310-2390MHz		
	Channel 0: 2402MHz	GFSK	V



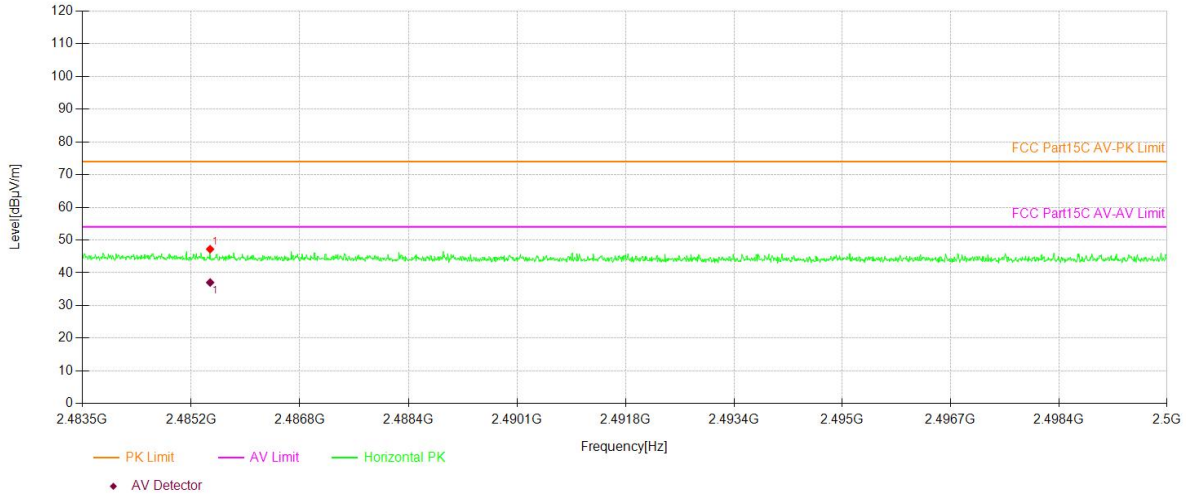
Test Model	Spurious Emission in Restricted Band 2310-2390MHz		
	Channel 0: 2402MHz	GFSK	H



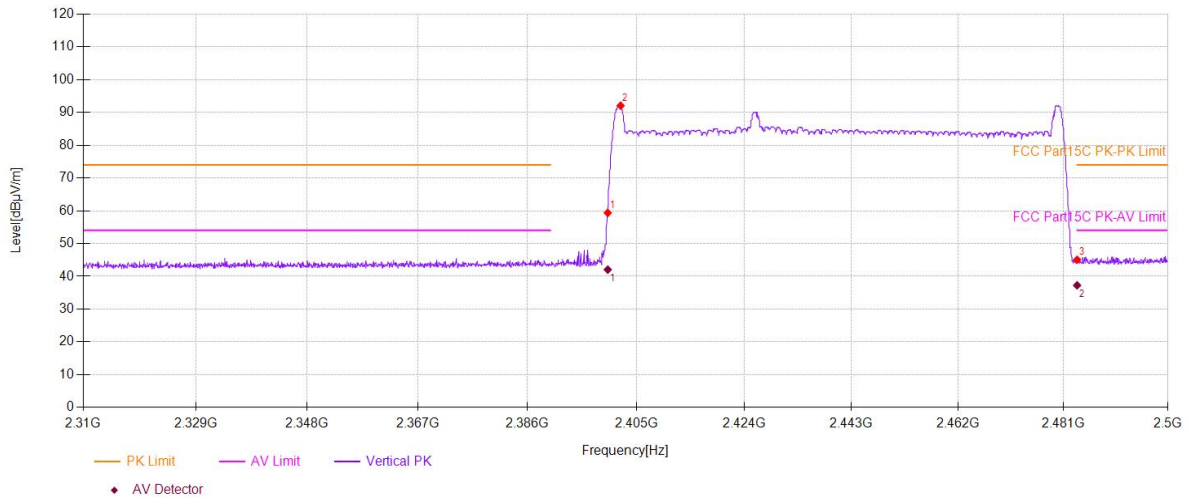
Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	Channel 78: 2480MHz	GFSK	V



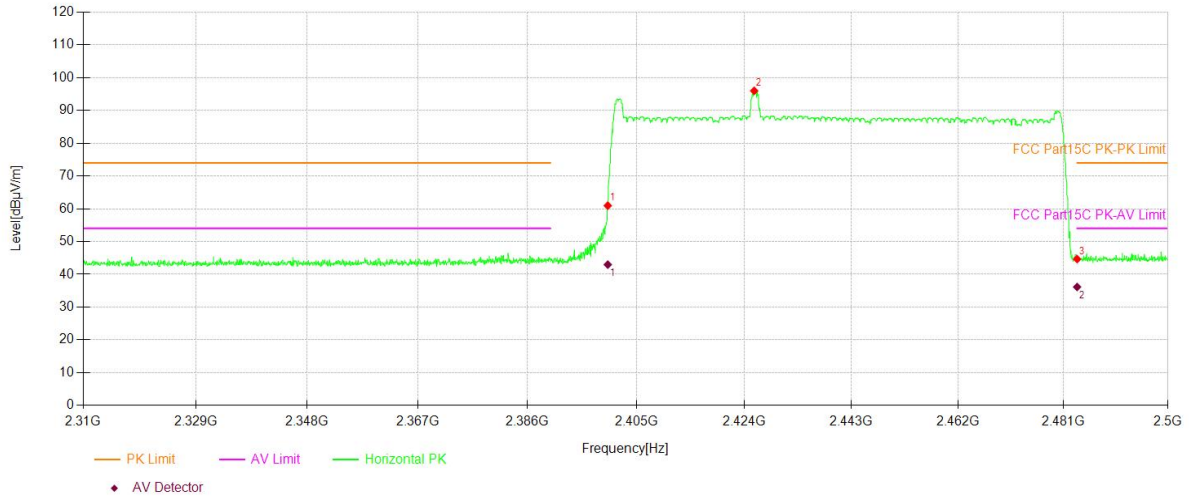
Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	Channel 78: 2480MHz	GFSK	H



Test Model	Spurious Emission in Restricted Band 2310-2390&2483.5-2500MHz		
	Hopping	GFSK	V



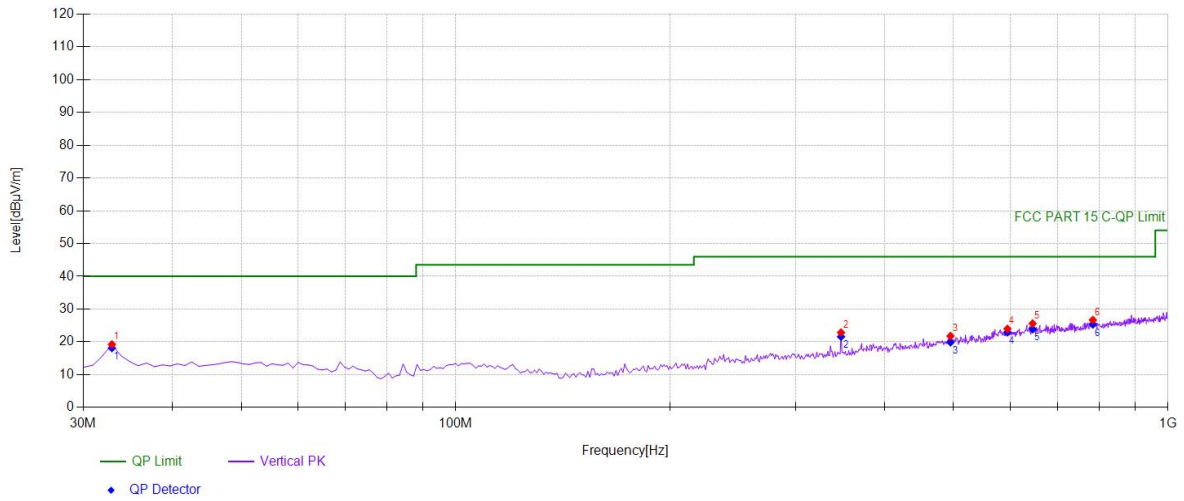
Test Model	Spurious Emission in Restricted Band2310-2390&2483.5-2500MHz		
	Hopping	GFSK	H



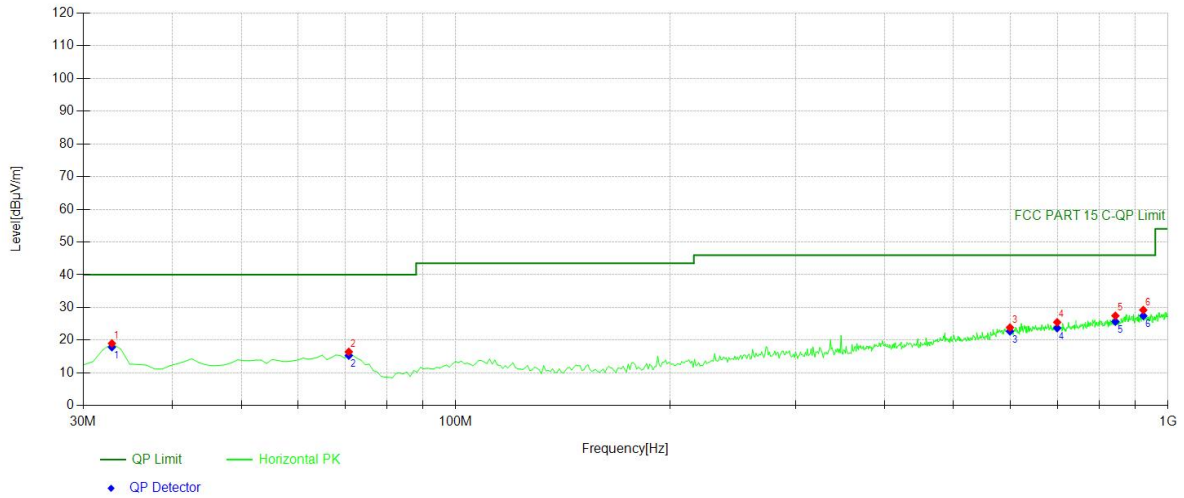
■ Spurious Emission below 1GHz(30MHz to 1GHz)

Bluetooth (GFSK, pi/4-DQPSK, 8DPSK) mode have been tested, and the worst result was 8DPSK report as below:

2402

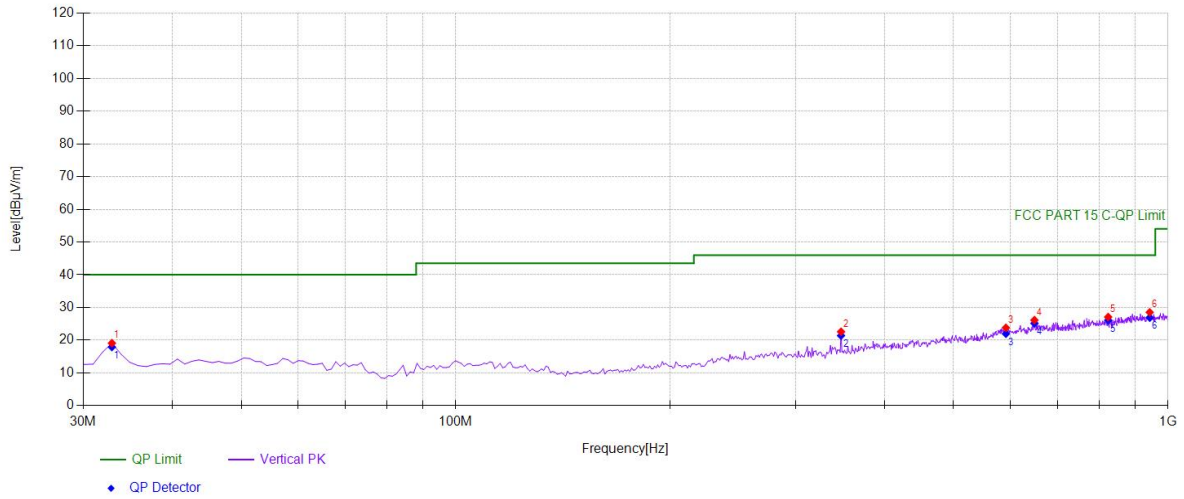


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	37.58	-18.35	19.23	PK	40.00	20.77	Vertical
2	347.5075	36.32	-13.47	22.85	PK	46.00	23.15	Vertical
3	495.0951	31.58	-9.78	21.80	PK	46.00	24.20	Vertical
4	595.1051	31.12	-7.14	23.98	PK	46.00	22.02	Vertical
5	645.5956	31.84	-6.23	25.61	PK	46.00	20.39	Vertical
6	784.4441	31.26	-4.58	26.68	PK	46.00	19.32	Vertical

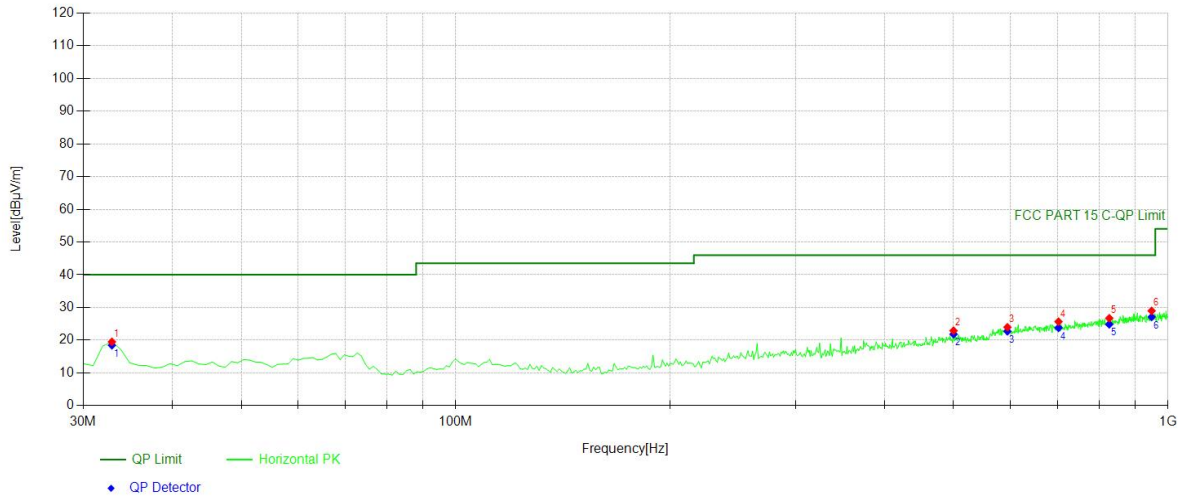


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	32.9129	37.37	-18.35	19.02	PK	40.00	20.98	Horizontal
2	70.7808	36.54	-20.08	16.46	PK	40.00	23.54	Horizontal
3	599.96	31.02	-7.14	23.88	PK	46.00	22.12	Horizontal
4	698.999	31.44	-5.95	25.49	PK	46.00	20.51	Horizontal
5	843.673	31.31	-3.84	27.47	PK	46.00	18.53	Horizontal
6	923.293	32.01	-2.78	29.23	PK	46.00	16.77	Horizontal

2441

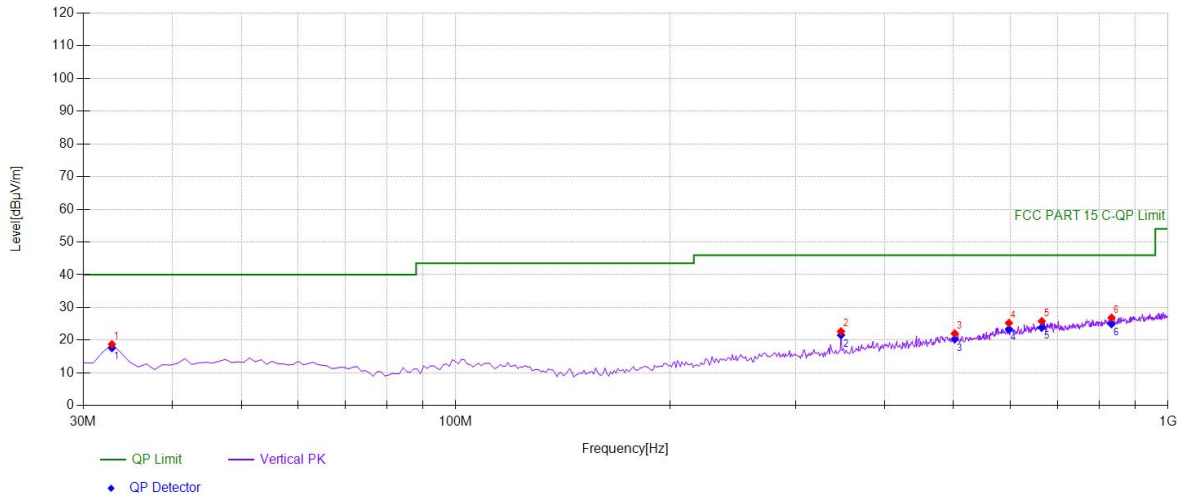


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	37.45	-18.35	19.10	PK	40.00	20.90	Vertical
2	347.5075	36.07	-13.47	22.60	PK	46.00	23.40	Vertical
3	592.1920	30.95	-7.14	23.81	PK	46.00	22.19	Vertical
4	649.4795	32.37	-6.22	26.15	PK	46.00	19.85	Vertical
5	824.2540	31.31	-4.21	27.10	PK	46.00	18.90	Vertical
6	942.7127	30.94	-2.41	28.53	PK	46.00	17.47	Vertical

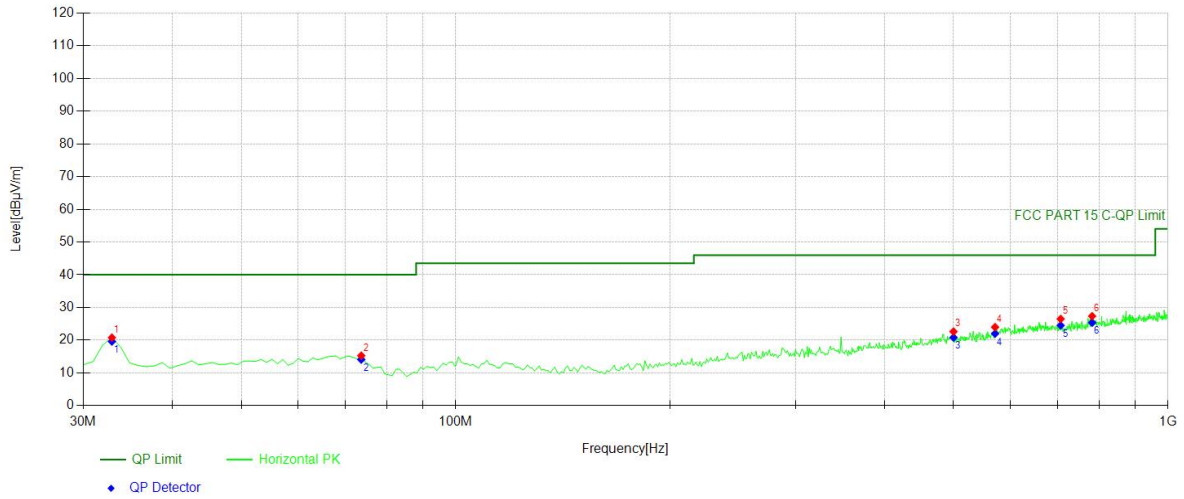


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	37.87	-18.35	19.52	PK	40.00	20.48	Horizontal
2	499.95	32.67	-9.76	22.91	PK	46.00	23.09	Horizontal
3	595.105	31.11	-7.14	23.97	PK	46.00	22.03	Horizontal
4	701.911	31.60	-5.92	25.68	PK	46.00	20.32	Horizontal
5	827.167	30.90	-4.17	26.73	PK	46.00	19.27	Horizontal
6	948.538	31.34	-2.35	28.99	PK	46.00	17.01	Horizontal

2480



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	37.12	-18.35	18.77	PK	40.00	21.23	Vertical
2	347.5075	36.15	-13.47	22.68	PK	46.00	23.32	Vertical
3	501.8910	31.81	-9.76	22.05	PK	46.00	23.95	Vertical
4	598.018	32.42	-7.14	25.28	PK	46.00	20.72	Vertical
5	665.015	31.96	-6.14	25.82	PK	46.00	20.18	Vertical
6	832.993	30.91	-4.04	26.87	PK	46.00	19.13	Vertical



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]	Polarity
1	32.9129	39.15	-18.35	20.80	PK	40.00	19.20	Horizontal
2	73.6937	35.81	-20.53	15.28	PK	40.00	24.72	Horizontal
3	499.95	32.41	-9.76	22.65	PK	46.00	23.35	Horizontal
4	571.8010	31.89	-7.89	24.00	PK	46.00	22.00	Horizontal
5	706.7660	32.38	-5.87	26.51	PK	46.00	19.49	Horizontal
6	782.5025	31.94	-4.59	27.35	PK	46.00	18.65	Horizontal

9.8 CONDUCTED EMISSION TEST

9.8.1 Applicable Standard

According to FCC Part 15.207(a)

9.8.2 Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

9.8.3 Test Configuration

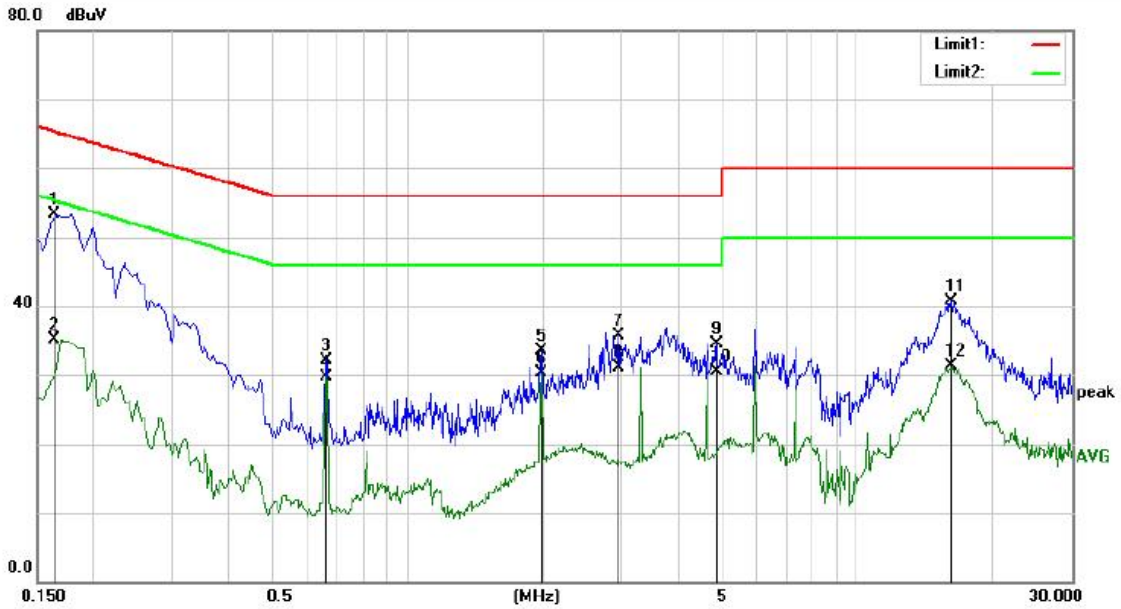
Test according to clause 7.3 conducted emission test setup

9.8.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

9.8.5 Test Results

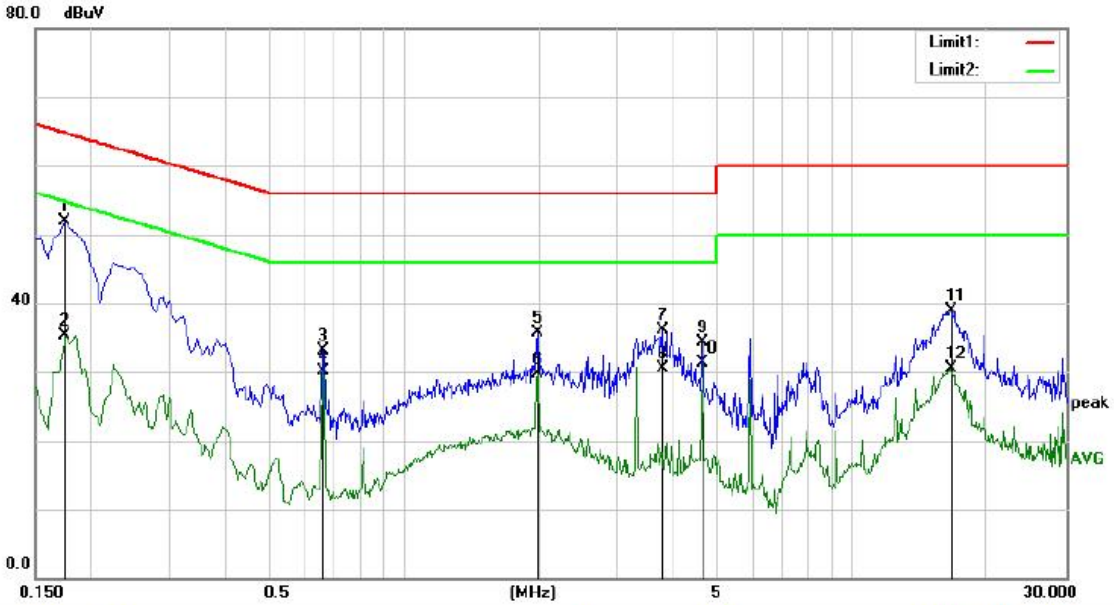
The 120V & 240V voltage have been tested, and the worst result recorded as below:



Site Conduction #1 Phase: N Temperature: 20.8

Limit: (CE)FCC PART 15 class B_QP Power: DC 5V FROM PC Humidity: 61 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1650	43.62	9.69	53.31	65.21	-11.90	QP	
2		0.1650	25.33	9.69	35.02	55.21	-20.19	AVG	
3		0.6600	22.49	9.65	32.14	56.00	-23.86	QP	
4		0.6600	20.12	9.65	29.77	46.00	-16.23	AVG	
5		1.9850	23.86	9.70	33.56	56.00	-22.44	QP	
6		1.9850	20.64	9.70	30.34	46.00	-15.66	AVG	
7		2.9550	25.93	9.77	35.70	56.00	-20.30	QP	
8		2.9550	21.31	9.77	31.08	46.00	-14.92	AVG	
9		4.8700	24.67	9.86	34.53	56.00	-21.47	QP	
10		4.8700	20.56	9.86	30.42	46.00	-15.58	AVG	
11		16.1800	30.66	10.02	40.68	60.00	-19.32	QP	
12		16.1800	21.37	10.02	31.39	50.00	-18.61	AVG	



Site Conduction #1 Phase: *L1* Temperature: 20.8

Limit: (CE)FCC PART 15 class B_QP Power: DC 5V FROM PC Humidity: 61 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1750	42.11	9.81	51.92	64.72	-12.80	QP	
2		0.1750	25.57	9.81	35.38	54.72	-19.34	AVG	
3		0.6600	23.41	9.65	33.06	56.00	-22.94	QP	
4		0.6600	20.40	9.65	30.05	46.00	-15.95	AVG	
5		1.9850	25.99	9.70	35.69	56.00	-20.31	QP	
6		1.9850	20.00	9.70	29.70	46.00	-16.30	AVG	
7		3.7700	26.33	9.81	36.14	56.00	-19.86	QP	
8		3.7700	20.79	9.81	30.60	46.00	-15.40	AVG	
9		4.6250	24.43	9.85	34.28	56.00	-21.72	QP	
10		4.6250	21.43	9.85	31.28	46.00	-14.72	AVG	
11		16.6300	28.90	10.06	38.96	60.00	-21.04	QP	
12		16.6300	20.39	10.06	30.45	50.00	-19.55	AVG	

9.9 ANTENNA APPLICATION

9.9.1 Antenna Requirement

Standard	Requirement
FCC CRF Part15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217,§15.219, or §15.221. Further, this requirement does not apply to intentionalradiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.9.2 Result

The EUT'S antenna is PCB antenna. The antenna's gain is -0.58 dBi, and the antenna can't be replaced by the userwhich in accordance to section 15.203, please refer to the photos.

----------The end----------